Virtual Alaska EV Workshop

Hosted by Alaska Center for Energy and Power and

United States Arctic Research Commission

June 16 & 17, 2020

Agenda

(All times are Alaska Time)

June 16

9 am **Welcome**

Gwen Holdmann, Alaska Center for Energy and Power

Cheryl Rosa, U.S. Arctic Research Commission

9:15 am **Introduction - Beneficial Electrification and EVs**

David Farnsworth, Regulatory Assistance Project

Beneficial Electrification and EVs

9:35 am **Session 1 – Policy Environment**

Moderator: Chris Rose, Renewable Energy Alaska Project

Britta Gross, Rocky Mountain Institute

How do we get more EVs on the Road?

Francesca Wahl, Tesla

Mark LeBel, Regulatory Assistance Project

Electric Vehicles and Rate Design

Topics for discussion

What policy instruments and incentives are used in other locations and how are they working? What policies can increase the social, economic and environmental net benefits from EV adoption in Alaska? What policies could help

reduce the risk of increased costs to utilities and their ratepayers in Alaska? What EV policy challenges exist in Alaska?

11:05 am **Break**

11:20 am **Session 2 – Charging Behavior**

Moderator: Sean Skaling, Chugach Electric Association

Alec Mesdag, Alaska Electric Light and Power

Electric Vehicles in Juneau

Yusef Orest, Minnesota Power

Minnesota Power's Electric Vehicle Strategy

Jamie Dunckley, Electric Power Research Institute

Charging Behavior: What have we learned so far?

Topics for discussion

What are typical EV charging behaviors for other geographical areas that have been studied with respect to charging levels and energy usage, charging times and frequencies, costs, and accompanying amenities? Will EV drivers in Alaska demonstrate charging behavior similar to trends seen in other locations?

12:50 pm **Closing comments**

12:55 **End Day 1**

June 17

9 am **Session 3 – Operations and Performance, EVs and EVSE**

Moderator: Dave Messier, Tanana Chiefs Conference

Michelle Wilber, Alaska Center for Energy and Power

Cold Weather Impacts on EVs

Nancy Brown, Duluth Transit Authority

Duluth Transit Authority Electric Bus Program

Megan Hoye, ZEF Energy

EV Smart Charging Performance & Operations

Topics for discussion

What effect does cold weather have on EV and EV Charging equipment performance? What opportunities exist for electrification of fleet equipment in Alaska and other regions? What are the installation and operating costs of Level 3 charging equipment?

10:30 am Break

10:45 am Session 4 – Grid Impacts

Moderator: Julie Estey, Matanuska Electric Association

Scott Lepold, Geotab

Grid Impacts: Findings from the EV Growing Pains Study

Clay Koplin, Cordova Electric Cooperative

Electric Vehicles (EVs) as Distributed Energy Resources (DERs) - Grid Impacts

Graham Turk, Green Mountain Power

Cutting Costs & Strengthening Customer Engagement with Managed EV Charging

Sam Dennis, Renewable IPP

EV Benefit to Utility Rates

Clara Good, University of Tromsø

Electric vehicles and solar energy in Tromsø

Topics for discussion

What are the grid impacts, at transformer and regional levels, of increased use of EVs and EV supply equipment? What are the technological capabilities and barriers related to Vehicle-to-Grid (V2G) and Vehicle-to-Household (V2H) technologies and systems? How could EVs be used for peak shaving? How could EVs support variable energy resources at residential and grid scales? How can EVs enhance renewable energy penetration in isolated Alaska microgrids?

12:25 pm Closing Comments

12:30 pm End Day 2

For more information on the Virtual EV workshop, Please contact Tim Leach at tleach5@alaska.edu.

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Participant Survey

Attendees, panelists, and moderators are asked to provide feedback to ACEP and USARC on the EV Workshop with this 3-minute survey at this link. Thank you!

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Speaker Bios

Introduction

David Farnsworth

David Farnsworth is a principal with the Regulatory Assistance Project, and advises regulators and advocates on clean energy and environmental policy and regulation. Prior to working with RAP, he served as a hearing officer and staff attorney with the Vermont Public Utilities Commission from 1995 to 2008.

Session 1 - Policy Environment

Chris Rose

Chris Rose is the founder and Executive Director of Renewable Energy Alaska Project (REAP), a non-profit coalition of over 75 diverse energy stakeholder organizations working to increase the development of renewable energy and promote energy efficiency across Alaska. REAP has been instrumental in helping to establish and fund clean energy programs and projects across Alaska, including the creation of the state's Renewable Energy Fund in 2008, the Emerging Energy Technology Fund in 2010, Commercial Property Assessed Clean Energy legislation in 2017 and the formation of the Railbelt's first regional Electric Reliability Organization in 2020. Before establishing REAP in 2004, Mr. Rose had a private law practice for over a decade that included work in remote Northwest Arctic villages and the mediation of a variety of disputes around the state. He has written a monthly opinion column for Alaska's only statewide newspaper, served on various statewide boards and committees and is currently the chairman of the

state's Renewable Energy Fund Advisory Committee. Since 2008, that Fund has granted over $270 million to 80 renewable energy projects that today are displacing the equivalent of 30 million gallons of diesel fuel each year. Mr. Rose also served on climate action advisory committees for Governor Sarah Palin and Governor Bill Walker. He lives 65 miles northeast of Anchorage, where he and his partner grow flowers and food on a small farm. In his free time he loves to cook, walk in the Alaska wilderness and visit ancient cultures around the world. He graduated Phi Beta Kappa from the University of Iowa with a B.A. in Political Science and a Certificate in Global Studies and received his law degree from the University of Oregon, with a Certificate in Environmental and Natural Resources Law.

Britta Gross

Britta Gross is the Managing Director of Rocky Mountain Institute's (RMI) mobility practice area, focused on the market-driven strategies and technologies required to accelerate towards carbon-free mobility solutions. Ms. Gross was formerly the Director of Advanced Vehicle Commercialization at General Motors, responsible for the energy strategies, partnerships, and policies required to enable the commercialization of GM's electric vehicle programs, including battery electric and hydrogen fuel cell electric vehicles.

Britta has an Electrical Engineering degree from LSU and studied language arts at the University of Wurzburg in Germany. She has held numerous board seats, including MobilityData, the Electric Drive Transportation Association (EDTA) and the Alliance for Transportation Electrification (ATE), and served as a Governor appointee on both the Massachusetts Zero Emission Vehicle Commission and the Maryland Electric Vehicle and Infrastructure Commission. She is also currently a Commissioner for the Orlando Utility Commission, Orlando's electric and water utility. Ms. Gross has received numerous industry awards including Automotive News' "Electrifying 100", the GreenBiz "Verge 25" award, and speaks regularly to national audiences on topics related to alternative fuels in transportation.

Francesca Wahl

Charging Policy Manager - Business Development & Public Policy, Tesla

As part of the business development and public policy team at Tesla, Francesca Wahl focuses on managing regulatory policy engagement on transportation electrification in

the Western States, including California. and electric vehicle charging infrastructure issues with key agencies, utilities, and cities across the country. Previously, she was the Senior Associate for Energy and Environmental Policy at the Silicon Valley Leadership Group, a public policy trade association representing more than 390 companies in Silicon Valley. Francesca has also worked on federal energy efficiency policy at the Alliance to Save Energy in DC, analyzed state recycling regulation and legislation, assisted governments and small businesses with implementing sustainability principles in their management plans, and served in the White House Liaison Office at the U.S. Department of Agriculture. Francesca has a B.A. in Economics and Foreign Affairs with Distinction from the University of Virginia.

Mark LeBel

Mark LeBel has more than a decade of experience working on the overlapping economics and law of energy and environmental policy in the United States. As a member of RAP's U.S. team, he focuses on rate design and utility reform, including compensation for distributed energy resources, the evolution of the electricity system, and beneficial electrification. Before joining RAP, Mr. LeBel was a staff attorney at Acadia Center, working on electric utility reform and broader clean energy issues across the Northeastern United States. From 2015 to 2019, he was a member of the Massachusetts Zero Emission Vehicle Commission. He also previously worked at NERA Economic Consulting, where he undertook a range of energy and environmental analyses, including national modeling of cap-and-trade programs and regional electric dispatch modeling. Mr. LeBel holds a Juris Doctor with honors from New York University School of Law and a bachelor's degree with honors in applied mathematics with a focus in economics from Harvard College.

Session 2 - Charging Behavior

Sean Skaling

Manager of Business and Sustainable Program Development, Chugach Electric Association, Inc.

Sean Skaling manages business and sustainable program development at Chugach Electric Association, a position that includes electric vehicle development. Supporting

electric vehicle proliferation is an important area of development for Chugach that closely fits its sustainability business management philosophy.

Prior to joining Chugach Electric, Sean was deputy director at the Alaska Energy Authority where he managed the Alaska Renewable Energy Fund to deploy competitive renewable energy projects statewide, and the Emerging Energy Technology Fund to identify and develop Alaska's future energy technologies.

Sean grew up in Maine and holds a bachelor's degree from Colby College and a masters' degree from the University of Colorado Boulder. He has lived in Anchorage since 1996. He and his wife have two teen boys, and enjoy trail running, rock climbing, and cross country skiing.

Sean is excited to be working on innovative energy solutions for Alaska's future.

Alec Mesdag

Alec Mesdag grew up in Juneau and holds a degree in environmental science from Oregon State University. Prior to starting with Alaska Electric Light and Power Co. (AEL&P) in 2012, he worked as a project manager for a large electrical contractor in Portland, OR, managing healthcare, high tech, and solar construction projects.

As vice president and director of energy services at AEL&P, Alec works to influence how customers consume energy in order to maximize the value of Juneau's carbon-free electric infrastructure. His accomplishments include developing and managing the utility's off-peak electric vehicle rate and charging equipment rental program.

Yusef Orest

Yusef Orest serves as the Subject Matter Expert and project manager for Minnesota Power's Electric Vehicle Programs and Services team. This is a brand new position to the utility and has been created to further the mission of beneficial electrification, service to Minnesota Power customers, and to help meet emission reduction targets in the State of Minnesota.

Yusef has spent the past decade and a half working in various roles the energy industry. Yusef has worked in energy consulting, wind resource analysis, key accounts

management, renewable energy project development, project management, demand side management, energy management, and EV program management. Prior to Joining Minnesota Power Yusef spent five and half years managing Member Services teams for Rural Electric Cooperatives in Minnesota.

Yusef resides on the North Shore of Lake Superior at the foot of the Sawtooth Mountains, Superior National Forest, and the Boundary Waters Canoe Area Wilderness with his wife and four sons. He and his family enjoy hiking, paddling, fishing, and skiing in Northern Minnesota.

Jamie Dunckley

Jamie Dunckley is a technical leader at the Electric Power Research Institute (EPRI). She manages projects ranging from vehicle tracking studies to electric vehicle buyer preferences. She also tracks electric vehicle sales and charging infrastructure growth. She joined EPRI in September 2014 in the Electric Transportation team.

While the subject matter of her work has changed over time, the data heavy aspect has not. During her postdoctoral position, Jamie managed an underwater research station in Monterey Bay that monitored and live-streamed oceanographic conditions. At EPRI, she has taken her big data skills to monitor electric vehicles. Her projects aim to understand how and why people drive, charge and purchase electric vehicles. Data for her projects is collected through surveys, physical monitoring devices placed on vehicles or through vehicle telematics.

Dunckley received a PhD in civil and environmental engineering from Stanford University and a bachelor of science degree in civil and environmental engineering from the Massachusetts Institute of Technology.

Session 3 - Operations and Performance Session

Dave Messier

Dave Messier works as the Rural Energy Coordinator for Tanana Chiefs Conference, a non-profit inter-tribal consortium serving the needs of 37 communities in interior Alaska.

Dave has been working on rural energy needs in bush communities since 2009. Past projects have included experience developing, managing and financing village scale biomass, solar PV, solar thermal, energy efficiency and powerhouse rebuild projects in various interior communities. Annually, these projects save rural communities tens of thousands of gallons of imported diesel fuel.

Dave holds a Bachelor of Science from Cornell University in Natural Resource management and a Masters of Business Administration (MBA) from the University of Alaska Fairbanks. He is a board member on the Golden Valley Electric Association (GVEA) Board of Directors and represents Tanana Chiefs Conference and rural Alaska on a variety of state and federal working groups. Dave is proud to call Fairbanks, AK home where he lives with his amazing wife, Heidi and their 2 kids.

Michelle Wilber

Michelle is a research engineer with the Alaska Center for Energy and Power (ACEP), University of Alaska Fairbanks. She has a BS in Astronomy from Caltech and an MS in Mechanical Engineering from the University of Alaska Anchorage. Michelle has been involved in projects ranging from solar resource characterization to battery sizing for Alaskan diesel microgrids and renewable integration modeling. She grew up in, and currently lives in Anchorage. She is happy to be doing work that she hopes will continue to make Alaska a great place to live for her family and all Alaskans. Preferring biking over driving, she does not technically own any motorized vehicle. However, she has owned and ridden an electric retrofit tandem bike, and dreams of an electric fat tire bike for winter commuting.

Nancy Brown

Nancy is the Procurement Manager for the DTA, with broad experience in purchasing everything from culverts to software to battery electric buses, as well as managing the DTA's parking ramp operation. She holds a bachelor's degree in environmental studies and a master's degree in Advocacy and Political Leadership. Nancy studied the hydrogen bus program in Iceland and advocates for sustainability in public transit. As a pragmatic environmentalist, she strives for practical, sustainable solutions for the good of the natural world and its inhabitants.

Jim Caywood

Jim is the most senior employee at the DTA, having worked his way through the ranks to become the Director of Maintenance for the past six years. During his career Jim has maintained many transit buses, from old diesel versions to clean diesel vehicles to hybrid diesel battery buses, and now the DTA's electric buses. Jim is committed to helping bus manufacturers understand the challenges that transit agencies face in cold weather climates, and has a keen appreciation for the balance between environmental concerns and the need to ensure that transit riders have safe and reliable buses for work, healthcare and other needs.

Megan Hoye

Megan Hoye is the Director of Business Development and Policy at ZEF Energy, an electric vehicle smart charging company based out of the Twin Cities (MN). Megan oversees the development of business relations, marketing, and policy tracking and engagement. Her work helps set strategic direction for customer offerings and helps educate stakeholders about the value of EV smart charging.

Megan came to ZEF from the Center for Energy and Environment (CEE) in Minneapolis where she managed special energy innovation projects and pilots for communities, utilities, and businesses, and worked on EV and energy code issues at the city and state levels. At CEE Megan led efforts to develop electric vehicle research, programs and engaged in policy discussions at the PUC. Megan has worked in sustainability and electricity for over 15 years and holds a Master of Science in Science, Technology, and Environmental Public Policy from the Humphrey School of Public Policy (U of MN).

Session 4 - Grid Impacts Session

Julie Estey

Julie Estey is the Senior Director of External Affairs and Strategic Initiatives at Matanuska Electric Association where she manages both the Member Services and Public Relations departments along with the organization's strategic plan. Of particular interest is helping MEA be proactive in navigating new innovations to serve evolving member needs. Before joining MEA, Ms Estey was the Business Director for the Alaska Center for Energy and Power, an energy research group at the University of Alaska Fairbanks focused on improving how Alaskans generate and distribute power. Julie has also worked as the Executive Director for the Yukon Quest in Fairbanks, the

Development Director for the University of Alaska Museum of the North as well as a management consultant with Andersen Consulting in Dallas and Chicago. She moved to Palmer in 2011 where she escapes to the mountains whenever possible, often dragging along her 6 and 9-year-old boys and geriatric sled dogs.

Scott Lepold

Scott Lepold is a Business Development Manager, Utility Solutions at FleetCarma, a division of Geotab. Scott works in collaboration with electric utilities to develop innovative programs and strategies to monitor and manage EV load, while also increasing EV owner engagement and EV adoption. Scott holds a Masters degree from the Faculty of Engineering, Management Science, and a Bachelor's degree in Environment and Business from the University of Waterloo (Ontario, Canada).

Clay Koplin

Clay Koplin is the Chief Executive Officer of Cordova Electric Cooperative, Inc. (CEC), where he has worked with a small, dynamic team to develop an advanced micro-grid system featuring 100% underground distribution lines and fully automated diesel power plant, hydroelectric power plants, and a Battery Energy Storage System. He has worked with the US State Department and US Department of Energy to develop and share remote microgrid and energy storage technologies and currently serves on the Federal Advisory Committee of the U.S. Department of Energy's Office of Electricity. As the Mayor of Cordova, Alaska, Clay brings a holistic, community approach and value-based electric cooperative perspective to grid projects and investments. Clay enjoys community service, writing, hunting, fishing, and gardening.

Graham Turk

Graham Turk is a member of the Innovation Development team at Green Mountain Power (GMP). His work involves designing and executing innovative pilot projects in areas such as electric vehicle charging, energy storage, responsive demand. These efforts contribute to GMP's larger mission to transform our energy system into one that is more distributed, carbon-free, and community-centered, while reducing costs and increasing reliability for customers. Graham holds a bachelor's degree in computer science from Princeton University and was a Fulbright scholar at the Royal Institute of

Technology in Stockholm, Sweden, where his research focused on local energy markets.

Clara Good

Clara Good is Associate Professor at the Department of Technology and Safety at UiT The Arctic University of Norway. She is also a part of the interdisciplinary Arctic Centre for Sustainable Energy (ARC), where she is one of the team leaders for the research area Transportation. Her research interest is electric transport combined with renewable energy systems. Clara has a research background in solar energy systems, especially applications for northern and cold climate conditions. She holds a M.Sc. degree in materials engineering, and a Ph.D. in solar energy for zero emission buildings. She is also an EV driver since four years.

Sam Dennis

Sam Dennis is the COO of Renewable IPP, LLC an Alaska company with the mission to rapidly expand utility scale solar development in Alaska. His remit includes the electrical design of new solar projects as well as the operation of completed projects. Sam has a BS in Geophysical Engineering from the Colorado School of Mines. He worked for ARCO/BP for 32 years as a geophysicist, engineer and project manager. Specific to the upcoming event, he is an EV owner and an advocate for EV adoption.